8 June 2017
Revised 7 August 2017

Glenn May
Project Manager
NYSDEC - Region 9
Division of Environmental Remediation
270 Michigan Ave.
Buffalo, New York 14203

RE: Pond 1A Corrective Measures Completion Report
Fashion Outlets of Niagara Falls Expansion/Sabre Park BCP
Brownfield Cleanup Program Site #: C932162
1705 Factory Outlet Boulevard
Town of Niagara, New York
Langan Project No.: 140091414

Dear Mr. May:

Langan Engineering, Environmental, Surveying, and Landscape Architecture, D.P.C. (Langan) has prepared this report to document the completion of corrective measures implemented at stormwater detention Pond 1A at the Fashion Outlets of Niagara Falls (FONF) Brownfield Cleanup Program (BCP) Site located at 1705 Factory Outlet Boulevard, Town of Niagara, New York (the "Site"). A Pond 1A Corrective Measures Plan (CMP) was prepared by Langan and submitted to New York State Department of Environmental Conservation (NYSDEC) on 13 January 2016. Following comments provided by NYSDEC, the CMP was revised on 26 May 2016 (included as Attachment A) and approved by NYSDEC on 20 June 2016 (approval letter included as Attachment B). Corrective measure activities were completed in accordance with the CMP and the NYSDEC-approved Site Management Plan (SMP), dated 15 November 2014. A Site Location Map is provided as Figure 1.

BACKGROUND

Macerich entered into a Brownfield Cleanup Agreement (BCA) with the NYSDEC as a "Volunteer" to investigate and, where necessary, remediate a 47.8-acre property located in the Town of Niagara, New York. The Fashion Outlet of Niagara Falls (FONF) Expansion/Sabre Park property (hereinafter referred to as the "Site") has been remediated to Track 4 Commercial Use BCP Cleanup criteria, and is redeveloped with a new 225,000 square-foot expansion of the existing FONF mall, including 175,000 square feet of new enclosed gross leasable area to the existing FONF mall, an additional 1,720,000 square feet of asphalt paved parking areas, 273,750 square feet of landscaped areas, and 225,000 square feet of stormwater detention ponds. Also, a new Secure Storage facility was constructed in the southwest corner of the Site to replace the former Secure Storage facility.

In October 2014, the project had completed construction and fulfilled its requirements under the BCP. As part of the environmental remediation for the project, engineering controls were implemented to prevent human exposure to subsurface impacts left in-place. Those controls included a site-wide cap consisting of asphalt paved parking, concrete structures and sidewalks, clay-lined stormwater ponds, and clean cover in landscaped areas. Although not part of the remedial action, a geosynthetic liner was placed within the pond areas as a measure to facilitate ease of construction. Locations and details of the engineering controls are provided in Figure 2 and a revised Stormwater Pollution Prevention Plan for the project is provided as Attachment C. A certificate of completion was issued by the NYSDEC on 19 December 2014.

BREACH DISOCVERY AND INTERIM CORRECTIVE MEASURES

In April 2015, a breach of the engineered cap at stormwater detention Pond 1A was observed. This was evidenced by a floating liner within the forebay of Pond 1A, discolored pond water (yellow-green), and hexavalent chromium identified in the pond water via analytical testing at a concentration of 1.8 mg/l. The NYSDEC was notified of the breach on 16 April 2016.

Upon discovery of the breach, the following preventative measures were implemented to protect human health and the environment prior to the implementation of a remedy:

- Construction of a temporary chain link fence around the perimeter of Pond 1A to prevent access to the pond by the public.
- Temporary sealing of all influent and effluent piping at Pond 1A with inflatable pipe plugs, brick, and mortar.
- Stormwater flow collected from pavement areas adjacent to Pond 1A was redirected to Pond 1B, effectively shutting off any stormwater discharges into Pond 1A.

REMEDY FAILURE INVESTIGATION

In June 2016, at the request of the Town of Niagara, Langan collected six water samples from the three stormwater detention ponds at the Site; one sample was collected from Pond 1A, two samples were collected from Pond 1B, and three samples were collected from Pond 2. Each of the samples were collected in laboratory-supplied containers and were submitted to York Analytical Laboratories, Inc. in Stratford, Connecticut, and analyzed for hexavalent chromium via EPA Method 7196A. Laboratory analytical results did not detect hexavalent chromium above the laboratory reporting limit of 10 micrograms per liter (µg/L) in any of the stormwater samples collected. The laboratory data deliverable for these samples is provided in digital form as Attachment D.

On 23 July 2016, Macerich, Langan and the remedial project team conducted an investigation of the engineered cap at stormwater detention Pond 1A. The investigation included the following:

- Dewatering and discharging of the overlying water within Pond 1A;
- Removal of 1-foot thick topsoil cover overlying the 40-mil high-density polyethylene (HDPE) liner at Pond 1A;
- Cutting and removal of the HDPE liner and dewatering of the underlying perched water trapped below the HDPE liner;
- Inspection of the integrity of the clay liner within Pond 1A; and,
- The investigation and inspection of the Pond 1A forebay pipe outfall penetration, including:
    - Removal of the 40-mil HDPE liner and welded pipe collar connecting to the outfall pipe;
    - Inspection of the underlying clay liner;
    - Inspection of the clay key which plugs the outfall pipe trench; and,
    - The excavation of the outfall pipe trench to identify any trapped perched water within the trench upstream.

Following the investigation of the pond, the cause of the breach was determined to likely be the result of a number of factors including, but not limited to: rapid snow melt, rising water table, trapped water in fill during construction, a breach of a stormwater pipe collar, and the natural clay thinning out in the vicinity of Pond 1A.

COMPLETED CORRECTIVE MEASURES

A Pond 1A Corrective Measures Plan (CMP) was prepared by Langan and submitted to NYSDEC 13 January 2016. Following comments provided by NYSDEC, the CMP was revised on 26 May 2016 (included as Attachment A) and approved by NYSDEC on 20 June 2016 (included as Attachment B). All corrective measures were completed in accordance with the Site's Excavation Work Plan (Appendix A of the SMP and provided as Attachment E of this report) and the revised Stormwater Pollution Prevention Plan (provided as Attachment C). From 23 July to 19 August 2016, the following corrective measures were completed at the Site (a corrective measures summary map is provided as Figure 3):

- Stored water within Pond 1A was sampled for approval prior to discharge to the Niagara Falls Wastewater Treatment Plant under a Niagara Falls Water Board (NFWB) Wastewater Facilities Discharge Permit for an Industrial Commercial User (ICU) (provided as Attachment F). Based on the acceptance limits provided in the NFWB

discharge permit and the analytical results of water samples collected from Pond 1A, treatment was not required for the water prior to discharge. Approximately 173,900 gallons of water from Pond 1A was discharged to the Niagara Falls Wastewater Treatment Plant during the implementation of the corrective measures.

- Approximately 200 cubic yards of flowable fill from the Lafarge Niagara Aggregate Plant of Niagara Falls, NY (Lafarge) was pumped into the now-abandoned stormwater outfall pipes at Pond 1A;
- A total of 4,729 tons of certified clean virgin quarry stone was imported from Lafarge to backfill Pond 1A to 1-foot of final grade.
- Approximately 1,100 cubic yards of topsoil was imported to the Site for use as the 1-foot thick clean cover over the former location of Pond 1A. The topsoil was imported from A-1 Land Care, Inc. located at 1527 Ridge Road in Lewiston, New York. Prior to import and placement at the Site, Langan sampled the topsoil in accordance with the SMP, and the analytical results were included in a 10 August 2016 Importation of Topsoil request that was submitted to NYSDEC. As detailed in these requests, no constituents were detected in any samples collected at concentrations exceeding the Allowable Constituent Levels for Imported Fill or Soil for Commercial Uses (Appendix 5 of DER-10). NYSDEC approval for the reuse this topsoil as part of the engineered cap/cover system is included in Attachment G.
- Langan implemented a community air monitoring plan (CAMP) to monitor particulates and VOCs during soil disturbance activities.

Implementation of storm-water pollution prevention measures were completed during the corrective measures in compliance with applicable laws and regulations. Excavation and off-site disposal of site soils was not necessary during completion of the CMP. Please note that the Site's stormwater management system required modification in order to compensate for the storage volume lost with the elimination of Pond 1A. As such, Macerich will be beginning construction activities associated with the stormwater reconstruction work on 8 August 2017. The proposed work generally includes the following:

- A pipe will be installed to drain the surface area at the former location of Pond 1a.
- A portion of the stormwater generated by the Secure Storage Facility will be redirected through a new storm sewer into Pond 2, reducing the inflow to Pond 1b.
- The new storm sewer that will reroute runoff from the Secure Storage Facility to Pond 2 will have a water quality unit installed to provide pretreatment upstream of the pond. This will involve the relocation of one of the previously installed water quality units.

CLOSURE

The following bullets recap the information contained within this Corrective Measures Completion Report:

- Following the investigation of the pond, the cause of the breach was determined to likely be the result of a number of factors including, but not limited to: rapid snow melt, rising water table, trapped water in fill during construction, a breach of a stormwater pipe collar, and the natural clay thinning out in the vicinity of Pond 1A.
- Pond 1A has been taken out of service and the breach in the site-wide cover system has been addressed in accordance with Langan's Pond 1A CMP, approved by NYSDEC on 20 June 2016.
- The remaining two ponds (Ponds 1B and 2) have not shown signs of failure from either uplift pressures or lateral pressure. Furthermore, water samples collected from Pond 1B and Pond 2 in June 2016 did not detect concentrations of hexavalent chromium above the laboratory reporting limit of 10 µg/L.

The Pond 1A corrective measures were conducted in accordance with the SMP and the NYSDEC-approved work plan, and all ECs are now operating per the design and are protective of human health and the environment. Based on the information provided in this letter, Langan requests NYSDEC update the corrective action status of the Site to "closed." Should you have any questions regarding the information contained in this letter, please do not hesitate to contact the undersigned.

Sincerely,
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.

Jamie P. Barr
Senior Associate/Vice President

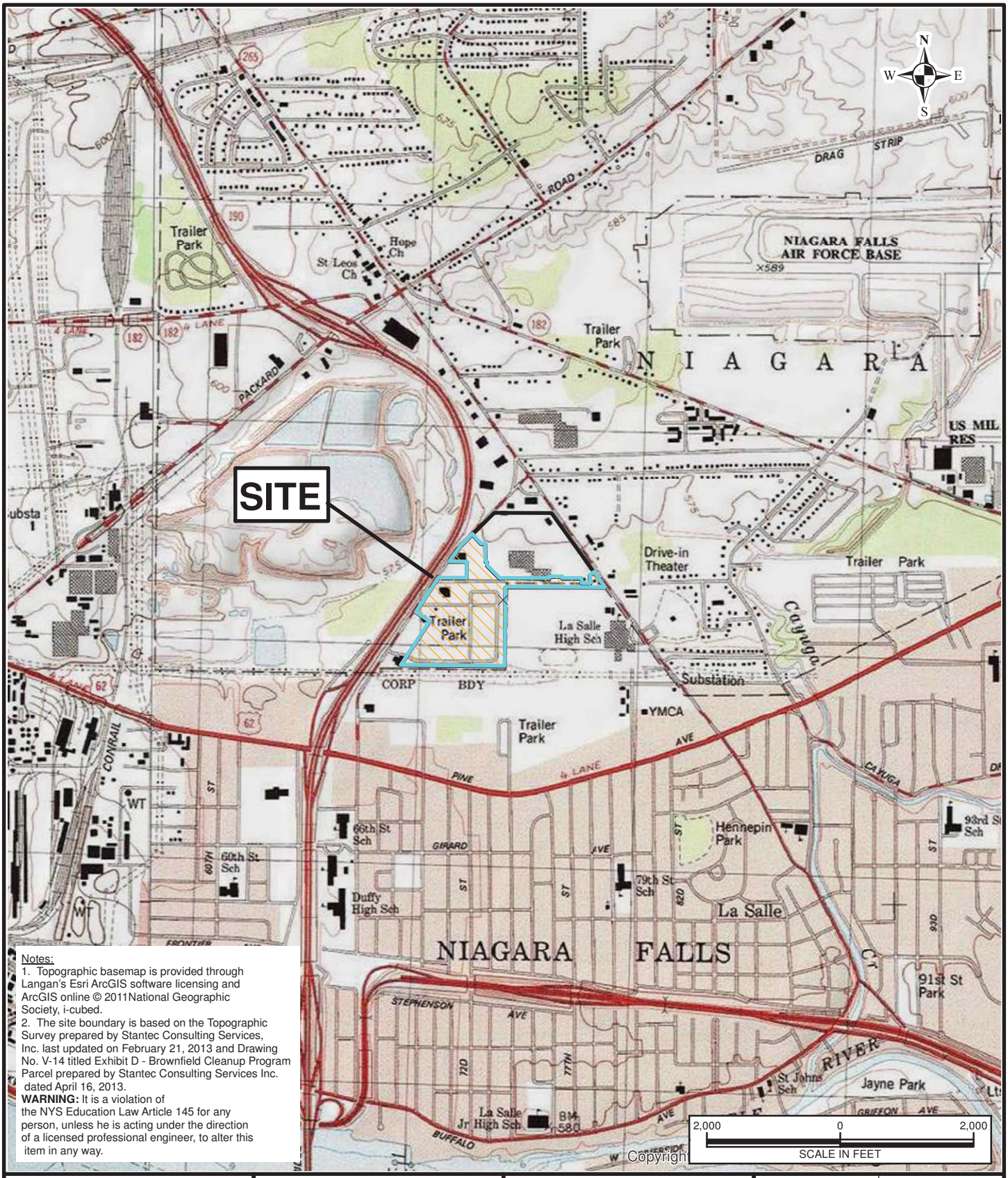
Ryan J. Wohlstrom
Project Engineer

Attachment(s): Figure 1 – Site Location Map
Figure 2 – Remedial Cap/Cover Cross Sections
Figure 3 – Corrective Measures Completion Plan
Attachment A – Corrective Measures Plan

Attachment B – NYSDEC Corrective Measures Plan Approval Letter
Attachment C – Revised Site Stormwater Pollution Prevention Plan
Attachment D – Pond Sampling Laboratory Analytical Data
Attachment E – Excavation Work Plan
Attachment F – NFWB Wastewater Discharge Permit
Attachment G – NYSDEC Topsoil Import Approval

cc: Aladdin Ghafari / Macerich

FIGURES



Notes:
1. Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online © 2011National Geographic Society, i-cubed.
2. The site boundary is based on the Topographic Survey prepared by Stantec Consulting Services, Inc. last updated on February 21, 2013 and Drawing No. V-14 titled Exhibit D - Brownfield Cleanup Program Parcel prepared by Stantec Consulting Services Inc. dated April 16, 2013.

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless he is acting under the direction of a licensed professional engineer, to alter this item in any way.

LANGAN
21 Penn Plaza, 360 West 31st Street, 8th Floor
New York, NY 10001-2727
T: 212.479.5400 F: 212.479.5444 www.langan.com

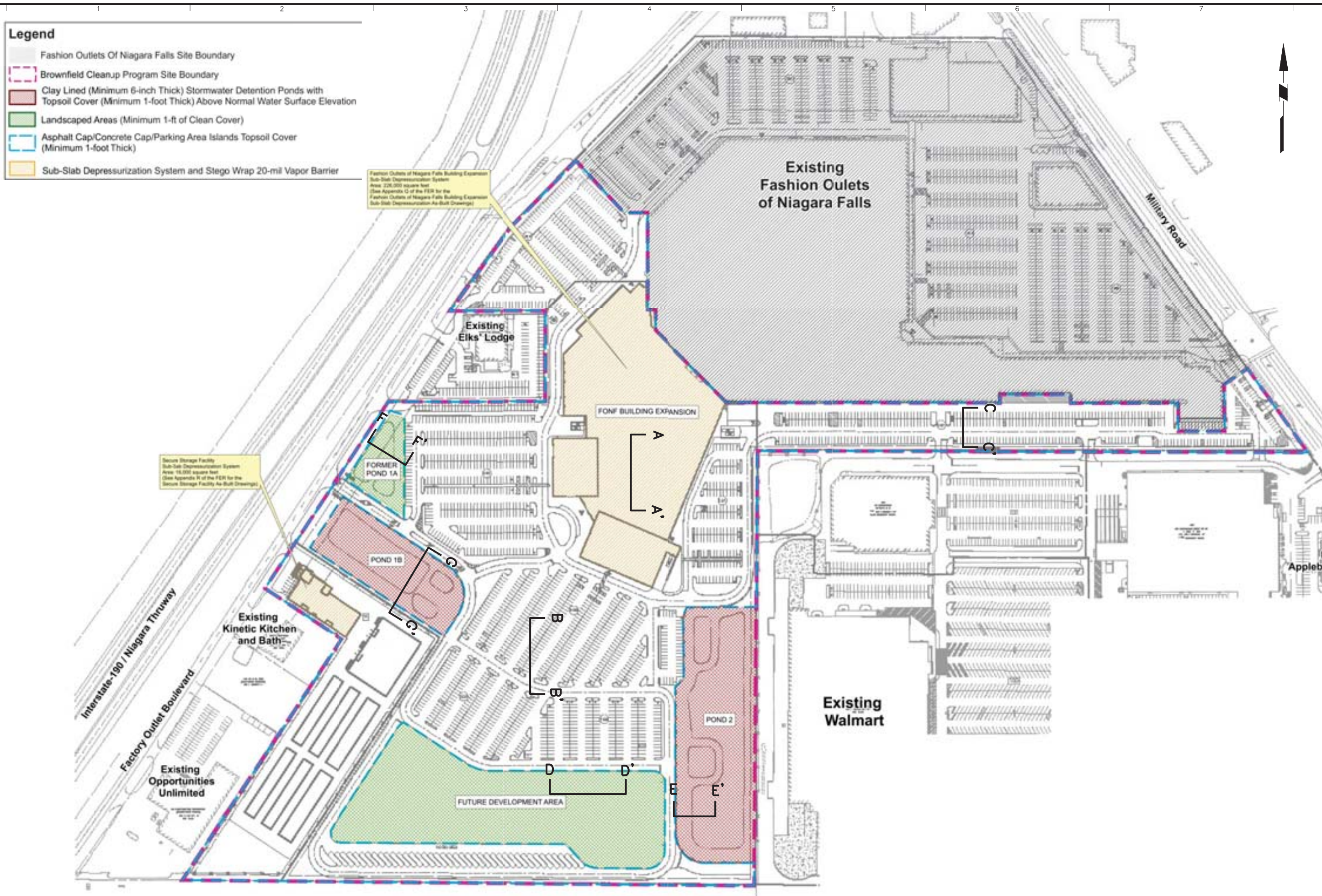
Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan International LLC
Collectively known as Langan

Project
FONF Expansion/ Sabre Park BCP
TOWN OF NIAGARA
NIAGARA COUNTY NEW YORK

Drawing Title
SITE LOCATION MAP

Project No. 140091414	Figure 1
Date May 2017	
Scale 1"= 2000'	
Drawn By JPH	
Last Revised May 2017	

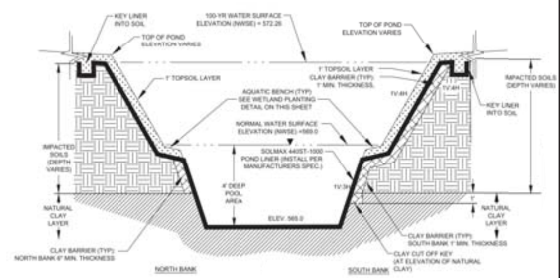
Path: \\langan.com\data\NH\data4\140091414\ArcGIS\ArcMap_Documents\Figure 1 - Site Location Map.mxd



REMEDIAL CAP/COVER CROSS SECTION LOCATION PLAN

GENERAL NOTES

1. THE SITE BOUNDARY IS BASED ON THE TOPOGRAPHICAL SURVEY PREPARED BY STANTEC CONSULTING SERVICES, INC. LAST REVISED ON 21 MAY 2014 AND IDENTIFIED AS DRAWING NO. GI-905 TITLED FASHION OUTLETS OF NIAGARA FALLS BCP ENVIRONMENTAL EASEMENT PLAN PREPARED BY STANTEC CONSULTING SERVICES, INC. DATED 27 MAY 2014.
2. BUILDING FOUNDATION CONCRETE CAP SECTIONS WERE COMPILED FROM BOTH THE LANGAN SUB SLAB DEPRESSURIZATION SYSTEM DESIGN FOUND IN APPENDIX K OF THE REMEDIAL ACTION WORK PLAN AND FOUNDATION DRAWING PROVIDED BY RTKL ASSOCIATES INC. (RTKL) ON 25 JULY 2014.
3. LANDSCAPED AREA TOPSOIL COVER DETAIL PROVIDED BY STANTEC ON 17 OCTOBER 2013.
4. POND LINING CROSS SECTIONS PROVIDED BY STANTEC ON 18 SEPTEMBER 2014.
5. EXISTING SITE SOIL COMPACTION, CLAY SOIL COMPACTION, AND ALL SUB-BASE COMPACTION WILL MEET THE REQUIREMENTS OUTLINED IN BARRON AND ASSOCIATES, P.C. (BARRON) GEOTECHNICAL REPORT DATED 31 JANUARY 2012.
6. ASPHALT DENSITIES AND CONCRETE COMPRESSIVE STRENGTH WILL MEET THE REQUIREMENTS OUTLINED IN STANTEC'S CONSTRUCTION SPECIFICATIONS.
7. ALL IMPORTED STONE SUB-BASE AND TOPSOIL WILL BE TESTED AND CERTIFIED IN ACCORDANCE WITH SECTION 5.4 OF NYSDEC'S DER-10 TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION DOCUMENT.
8. THE FASHION OUTLETS OF NIAGARA FALLS EXPANSION BUILDING AND THE SECURE STORAGE FACILITY SUB-SLAB DEPRESSURIZATION SYSTEM AS-BUILT DRAWINGS CAN BE FOUND IN APPENDIX AND APPENDIX R RESPECTIVELY OF THE FINAL ENGINEERING REPORT.



CROSS SECTION G - G'
POND 1B STORMWATER DETENTION BASIN CLAY LINER CAP
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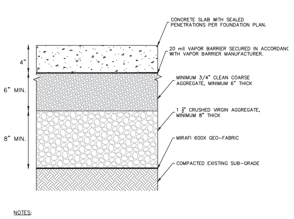

CROSS SECTION A - A'
BUILDING FOUNDATION CONCRETE CAP
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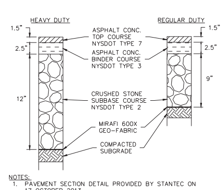

CROSS SECTION B - B'
PARKING AREA ASPHALT CAP
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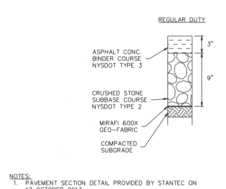
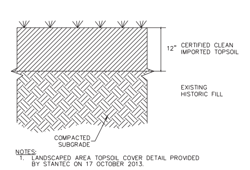


CROSS SECTION C - C'
EASTERN PARKING AREA ASPHALT CAP
N.T.S.



CROSS SECTION D - D'
LANDSCAPED AREA CLEAN FILL COVER
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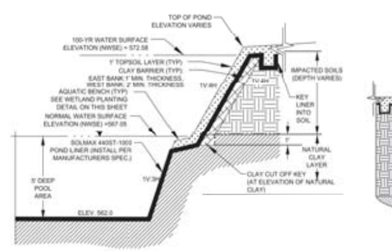
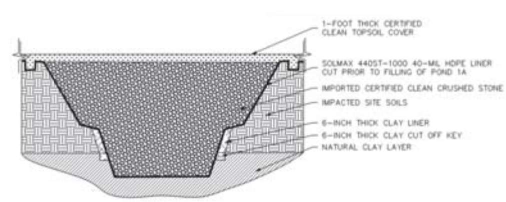


CROSS SECTION E - E'
POND 2 STORMWATER DETENTION BASIN CLAY LINER CAP
N.T.S.



CROSS SECTION F - F'
POND 1A STORMWATER DETENTION BASIN CLAY LINER CAP
N.T.S.

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LANGAN
21 Penn Plaza, 360 West 31st Street, 8th Floor, New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan CT, Inc.
Langan International LLC
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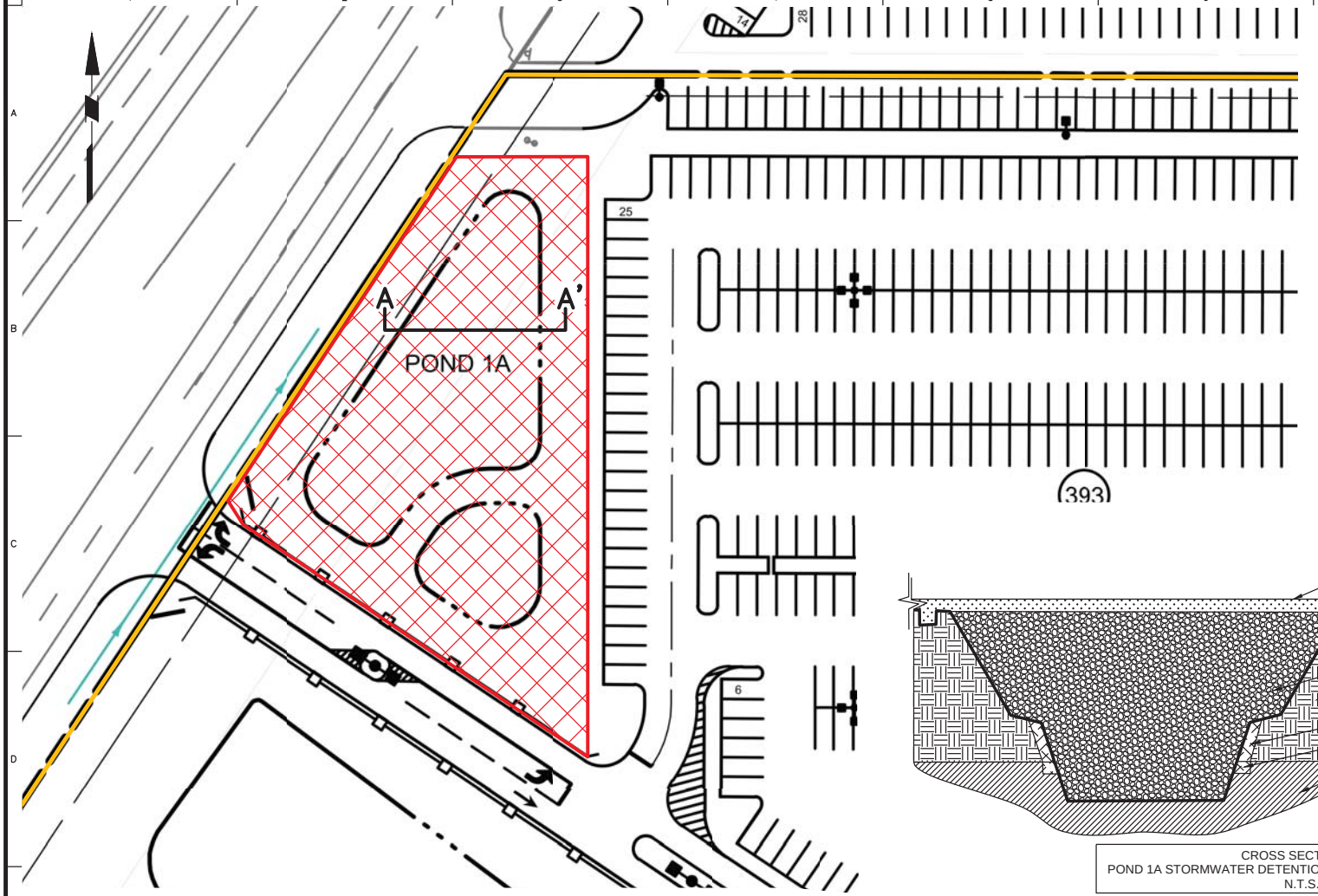
Project	FONF Expansion/ Sabre Park BCP, TOWN OF NIAGARA, NIAGARA COUNTY, NEW YORK
Drawing Title	REMEDIAL CAP/COVER CROSS SECTIONS
Project No.	140091414
Date	MAY 2017
Scale	N.T.S.
Drawn By	JPH / Checked By RJW
Submission Date	MAY 2017
Drawing No.	2
Sheet	2 of 4



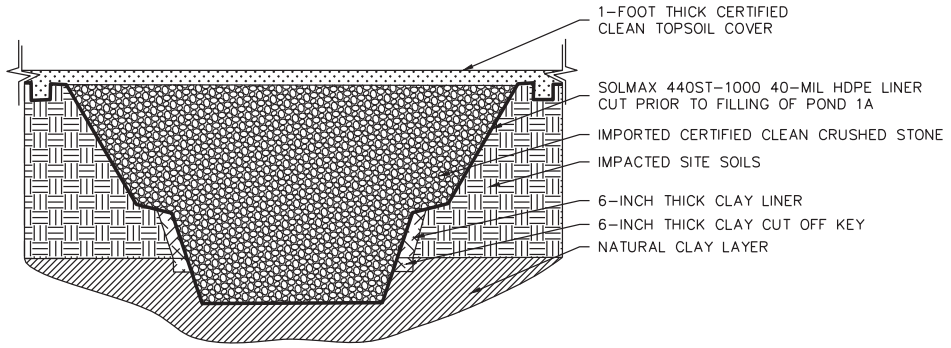
LEGEND

BROWNFIELD CLEANUP PROGRAM SITE BOUNDARY

CORRECTIVE MEASURES WORK AREA

NOTES

1. THE BASEMAP WAS PROVIDED BY STANTEC CONSULTING SERVICES, INC. PN 27 AUGUST 2014 AND IS IDENTIFIED AS DRAWING CS 100 – OVERALL SITE PLAN.
2. THE SITE BOUNDARY IS BASED ON THE TOPOGRAPHICAL SURVEY PREPARED BY STANTEC CONSULTING SERVICES, INC. LAST REVISED ON 21 MAY 2014 AND IDENTIFIED AS DRAWING NO. GI-905 TITLED FASHION OUTLETS OF NIAGARA FALLS BCP ENVIRONMENTAL EASEMENT PLAN PREPARED BY STANTEC CONSULTING SERVICES, INC. DATED 27 MAY 2014.
3. THIS PLAN SHOULD BE REVIEWED AS A COLOR COPY AS WORK AREA LOCATIONS ARE COLOR COORDINATED.
4. POND LINING CROSS SECTION PROVIDED BY STANTEC ON 18 SEPTEMBER 2014.
5. ALL IMPORTED STONE AND TOPSOIL WAS TESTED AND CERTIFIED IN ACCORDANCE WITH SECTION 5.4 OF NYSDEC'S DER-10 TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION DOCUMENT.



CROSS SECTION A-A'
POND 1A STORMWATER DETENTION BASIN CORRECTIVE MEASURE
N.T.S.

50 0 25 50
SCALE IN FEET

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LANGAN
555 Long Wharf Drive
New Haven, CT 06511
T: 203.562.5771 F: 203.789.6142 www.langan.com
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
FONF EXPANSION / SABRE PARK BCP
TOWN OF NIAGARA
NIAGARA COUNTY NEW YORK

Drawing Title
CORRECTIVE MEASURES COMPLETION PLAN

Project No.	Drawing No.
140091414	3
Date: May 2017	
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Drawn By: JPH / Checked By: RJW	
Submission Date: May 2017	

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